Attachment J-1
Performance Work Statement

For

MSFC Information Technology Services (MITS)

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1.0 General

The Marshall Space Flight Center (MSFC), located in Huntsville, Alabama, is a branch of the National Aeronautics and Space Administration (NASA). The Center resides within the boundaries of the United States Army's Redstone Arsenal and employs approximately 7,000 NASA civil servants and contractors who perform various duties across the MSFC campus.

The Center will be dependent upon the MSFC Information Technology Services (MITS) contract as the primary provider of information technology and communication services for the Center, the National Space Science and Technology Center (NSSTC) in Huntsville, Alabama, and the Michoud Assembly Facility (MAF) in New Orleans, Louisiana.

1.1 Mission Statement

NASA's mission is to pioneer the future in space exploration, scientific discovery and aeronautics research. NASA conducts its work in four principle organizations, called mission directorates:

> Aeronautics: pioneers and proves new flight technologies that improve our ability to explore and which have practical applications on Earth.
>
> Exploration Systems: creates new capabilities and spacecraft for affordable, sustainable human and robotic exploration.
>
> Science: explores the Earth, moon, Mars and beyond; charts the best route of discovery; and reaps the benefits of Earth and space exploration for society.
>
> Space Operations: provides critical enabling technologies for much of the rest of NASA through the space shuttle, the International Space Station and flight support.

NASA Headquarters, in Washington, provides overall guidance and direction to the agency, under the leadership of the NASA Administrator. Ten field centers and a variety of installations conduct the day-to-day work, in laboratories, on air fields, in wind tunnels and in control rooms. The Centers (e.g., MSFC) determine how the mission directorate programs will be implemented, and execute Agency-wide programs as they are assigned.

The nature of NASA's program implementation model requires cross-Center collaboration for the execution of the mission directorate programs. Mission programs and HQ initiatives are executed across multiple centers. NASA requires a seamless technical infrastructure to ensure interoperability within programs and across Centers. The Centers have the responsibility to implement and manage that technical structure.

Agency-wide NASA corporate initiatives and resulting MSFC-hosted programs are the primary drivers that define MSFC's IT requirements. The Agency's business model is transitioning from one based on autonomous Centers to a more tightly coupled organization with business processes executed across Center and organizational boundaries. NASA is aligning all support services to mission programs (shared infrastructure services model) and will need to drive cost savings through consolidated support services and other opportunities for increased efficiencies. MSFC-hosted programs range from self-contained, mature operations requiring basic commodity support to new,

increasingly complex startup programs requiring collaborative engineering environments across NASA centers and beyond.

Because IT comprises a substantial part of the Agency's overall budget, it must be managed strategically, fully aligned with customer needs, and evaluated to ensure successful performance. MSFC's IT service providers must function as IT partners with our customers, who are increasingly recognizing the criticality and value of IT to their programs. Within this framework, the contractor's mission is to manage, be responsible for, and provide IT services to meet the requirements defined by this Performance Work Statement (PWS). The contractor shall: (a) operate and maintain existing equipment, software and services; (b) gather, analyze, define, and document systems requirements; and (c) plan, design, develop or acquire, integrate, test, and implement new systems or enhancements to existing systems for the following services:

IT Security Services
IT Planning, Policy, Architecture & Integration
Telecommunications Services
Applications and Web Services
Computing Services
Audio Visual Information Services

These services include IT systems support for programs and projects for which the Office of the Chief Information Officer (from here on referred to as OCIO) is responsible. For the purposes of this PWS, the customer is defined as the end-user of the services described regardless of geographic location. A customer may include a NASA Program/Project office, Staff office, NASA contractor, or an individual within these organizations.

1.2 Responsibilities

a. Government - OCIO

The OCIO is the principle MSFC Organization responsible for all MSFC IT related functions, including the development of Center IT strategies, IT architecture, IT investment management and tracking, and IT customer relationship management. The OCIO utilizes a process-oriented methodology of governance to effectively manage the acquisition, provisioning, use, and oversight of information technology resources. Innovation and learning are at the heart of the OCIO management philosophy. In the execution of these roles, the OCIO has total system management responsibilities that include long-range planning, requirements definition, alternative analysis, design, acquisition or development, integration, testing, implementation, and ongoing operations, maintenance, and administration of both hardware and software.

The OCIO uses service level management, customer feedback, and continuous improvement processes to maintain high quality services that are cost effective and efficient and produce the highest levels of customer satisfaction. Strong customer relationships are put in place to achieve clear understanding of customer goals, with service level agreements describing the services to be provided. The OCIO will evaluate the contractor's performance by utilizing the Evaluation Surveillance Plan (Attachment J-5).

b. Contractor

The contractor is designated "Systems Manager" for OCIO managed systems. The contractor responsibilities shall include long-range planning, requirements definition, alternative analysis, design, acquisition or development, integration, testing, implementation, and ongoing operations, maintenance, and administration of both hardware and system software. The contractor shall assess the feasibility and cost effectiveness of new technology and provide recommendations for the retirement of existing technologies.

The contractor shall provide the customer services described in this PWS. In providing these services, the contractor shall perform the management functions described in paragraph 2.0 in an integrated and cost effective manner, and with minimum additional action by the customer. The contractor shall comply with the regulations, procedures, and agreements as defined in Attachment J-9. For example, a new project is assigned to MSFC requiring program planning and engineering analyses. The contractor shall interface with the NASA points of contact and the customer to design, develop, and implement IT services to meet the customer requirements, while ensuring alignment with the current Enterprise Architecture and that existing Center resources are utilized to the maximum extent.

When ensuring that existing Center resources are utilized to the maximum extent possible, the contractor shall interface with other suppliers such as the End-User Services contractor. These interfaces, as well as interfaces with customers, are defined in Operating Agreements, Memoranda of Understanding (MOU), Memorandums of Agreement (MOA), Interface Control Documents (ICD), NASA policies, Associate Contract Agreements (ACA), Service Level Agreements (SLA) and other written agreements.

The contractor shall measure and report the service-level objectives and performance for each of the services defined in this PWS and DRD 1292MA-011, Contractor Self-Assessment Report. The performance metrics for the services are specified in Attachment J-4.

In performing the requirements of this contract, the contractor shall clearly and consistently characterize the various services as separate and distinct. This characterization is essential in delineating the different funding and approval procedures associated with each service, and in ensuring accuracy of cost reporting in accordance with the Work Breakdown Structure (WBS), prepared in accordance with DRD 1292MA-005.

The contractor shall report and document this work and fulfill the requirements of associated Data Requirement Descriptions (DRD's) as outlined in Data Procurement Document (DPD) 1292 (Attachment J-2). The contractor shall determine the data restriction that applies to each data deliverable and mark or transmit the data restriction in accordance with section 2.3.3 of the Data Procurement Document.

The contractor shall prepare and submit an Option Decision Package in accordance with DRD 1292CD-001.

Emergency Preparedness and Response - The Contractor's obligation may include resolution of unusual or emergency situations. The Contractor may be required to assist NASA, within the general scope of work, but in currently unidentified ways, in preparation for, or in response to emergencies. Obligations under this requirement shall only arise when one or more of the criteria at

FAR 18.001, enabling NASA to utilize "Emergency Acquisition Flexibilities", are met. If the emergency preparedness and response requirements result in changes to the contract, all contract adjustments will be processed in accordance with the Changes clause of this contract.

2.0 Management Support

The contractor shall provide all resources necessary to accomplish the mission defined in this PWS. The contractor shall provide project management, financial management, contract administration, procurement, asset management, security, safety, facilities management, and quality management to accomplish the mission. The contractor shall provide, implement, and maintain the requisite organization, employee value system, disciplines, and systems necessary to manage the resources required for performance of these functions. In performance of program management functions, the contractor shall:

a. Ensure the implementation of management practices to proactively pursue innovation and technology advancement to enhance customer satisfaction and service delivery.
b. Ensure the implementation of effective engineering, business management, and other quality practices to deliver the services in an efficient and integrated manner. These practices shall also ensure the delivery of services at a sustained high level of success.
c. Implement practices to ensure effective communication of management, technical, quality, costs, and customer satisfaction issues that arise in the performance of this contract.
d. Prepare, implement, and maintain the MITS Management Plan in accordance with DRD 1292MA-001. The plan will also provide a strategy blueprint for the next year as well as implementing guidance for realizing the stated goals and objectives of the OCIO. Operate and maintain management information systems to enable management of the Center's IT portfolio.
e. Implement and maintain a process to collect MSFC wide IT systems/services information to support the IT Integration function of the OCIO.
f. Provide training for the contractor's personnel to perform the services and functions described in this PWS.
g. Provide technical information concerning any invention, discovery, improvement, or innovation made by the Contractor in the performance of work under this PWS. Technology Reports shall be prepared in accordance with DRD 1292CD-002.
h. Provide systems, applications, and products associated with the six covered Electronic and Information Technology Accessibility product groups as follows. All systems, applications, and products associated with these groups shall comply with the applicable standards contained with the Federal Acquisition Circular 97-27, Electronic and Information Technology (EIT) Accessibility, Section 508 of the Rehabilitation Act of 1973 by implementing the applicable Technical Standards (Subpart B) including: Software Applications and Operating Systems (1194.21); Web-based Intranet and Internet Information and Applications (1194.22); Telecommunications Products (1194.23); Video or Multimedia Products (1194.24); Self-Contained Closed Products (1194.25); Desktop and Portable Computers (1194.26).

2.1 Project Management

The contractor shall provide cost, schedule, risk, and technical management of all MITS services, functions, and tasks in accordance with NPR 7120.7, *NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements*. In performance of these functions, the contractor shall:

a. Prepare and submit monthly reports of project plans, status, and schedules in accordance with DRD 1292MA-008. Prepare and conduct monthly program management reviews including presentation and discussion of program priorities, project statuses, significant accomplishments, risk management, and problem areas.
b. Track official communications with the Contracting Officer's Technical Representative (COTR) such as technical direction, requests for information, and transmittals, and provide status concerning all such communications in accordance with DRD 1292MA-008.
c. Track monthly export control activities and report in accordance with DRD 1292MA-007.

2.2 Financial Management

The contractor shall plan, track, accumulate, and report contract costs and provide other financial support required to meet the budgeting, cost reporting, billing, and disclosure requirements of the contract. In performance of this function, the contractor shall:

a. Maintain the current cost management system, Management Information Control System (MICS).
b. Provide cost reports in accordance with DRD 1292MA-010.
c. Prepare and submit the Financial Management Report (533M) in accordance with DRD 1292MA-009.
d. Provide input data to the NASA Programming, Planning, Budgeting, Execution (PPBE) process. These data shall incorporate annual requirements projections in the form of Spend plans that match the PPBE horizon of the next Execution Year plus 5 years as Budget Year (BY), BY+1, BY+2, BY+3 and BY+4.
e. Uniquely identify each Capital Asset acquired by its unique WBS on the NF533 submittal in accordance with NASA Interim Directive (NID) 9250, Identifying Capital Assets and Capturing Their Costs, dated September 30, 2007 or any superseding NASA requirements.
f. Plan, track, execute, control, and report schedules and resources across functional activities in accordance with DRD 1292MA-008.

2.3 Contract Administration

In performance of contract administration functions, the contractor shall:

a. Provide a single point of contact with contractual obligation authority for all contract administration functions and activities required in performance of this contract. This point of contact shall have access to all contract administration data and information related to performance of this contract.
b. Provide on-line access to the contract administration information and data through MICS to the Contracting Officer (CO) and designated personnel. Provide labor data including contract totals by department, location, and WBS elements in accordance with DRD 1292MA-008.
c. RESERVED

d. Generate, edit, merge, maintain, and distribute documentation related to the performance of this contract in accordance with DRD 1292MA-002 including electronic documentation.

e. Provide, implement, and maintain an on-line documentation management system in accordance with NPD 1440.6, *NASA Records Management*.
f. Provide documentation access to CO- and COTR-designated personnel.
g. Maintain an initial set of documentation and drawings that was generated under previous contracts related to the work described in this PWS and in accordance with DRD 1292MA- 002.
h. Prepare and maintain a Documentation Tree that categorizes, lists, and describes all such documentation in accordance with DRD 1292MA-002.
i. Prepare and submit documents for OCIO-sponsored user meetings and committees, and provide support for follow-up documentation for these meetings.
~~j. Prepare and submit a Contractor Employee Clearance Document in accordance DRD 1292MA-013.~~
k. RESERVED
l. Prepare and submit an Organizational Conflict of Interest Plan in accordance with DRD 1292MA-015.

2.4 Procurement

In performance of this contract, the contractor shall:

a. Implement and maintain a procurement information system as part of MICS in accordance with DRD 1292MA-008. The system shall accurately track the status of individual procurements, whether initiated by the online service ordering system or other means, from purchase request through final purchase order, delivery, and acceptance. The system shall provide for on-line funding verification of purchase requests prior to initiation of purchase orders.
b. Provide, implement, and maintain procurement controls including: contractor policies and procedures governing standards of conduct, procurement processes and practices, and prevention of waste, fraud, and mismanagement.
c. Provide all supplies, materials, and services (not otherwise furnished by the Government) required to perform the services and functions specified in the PWS and to accomplish the MITS mission.
d. Provide replacement and spare parts or equipment, temporary labor services, vendor maintenance agreements, software subscription services, hardware engineering changes or updates, IT-related supplies and special general-purpose software packages necessary to perform the operations and maintenance functions of this contract.
e. Provide hardware upgrades; systems and applications software licenses, renewals, and enhancements; services and maintenance, including utilizing Agency-wide or government-wide contracts or site software license agreements, for the systems for which the contractor is designated Systems Manager.
f. The contractor shall provide IT equipment and IT software necessary to fulfill MSFC requirements, within the guidance of the Federal Acquisition Regulation (FAR), including utilizing government and NASA/MSFC contracts or site software license agreements.

2.5 Asset Management

The contractor shall provide, implement and maintain a Government Property Management Plan in accordance with DRD 1292LS-001 for all government property for which the contractor has been furnished or has acquired. The contractor shall have user responsibilities for the Installation

Accountability Government Property (IAGP). The contractor shall be accountable for the record keeping, physical inventory, financial control and reporting of government property that does not meet IAGP control thresholds. The contractor's plan must incorporate the requirements of NPR 4100, NPR 4200, NPR 4300, MPR 4200.2 and MWI 4500.1. The contractor shall also be responsible for reimbursable shipment of property as required to support service delivery.

2.6 Security

a. The contractor shall ensure that their management of NASA Information Technology (IT) under this contract conforms to all applicable Federal laws, and NASA and Center IT requirements, regulations, policies, and guidelines as defined in relevant Federal and NASA documents. These requirements, regulations, policies, and guidelines are identified in Attachment J-9, *Applicable Regulations and Procedures.*
b. Definitions:
   (1) IT resources means any hardware or software or interconnected system or subsystem of equipment, that is used to process, manage, access, or store electronic information.
   (2) NASA data is any data and information, except for limited rights data or restricted software, which is produced or specifically used in the performance of a NASA contract.
c. The contractor shall protect the confidentiality, integrity, and availability of NASA data and IT resources.
d. In the MITS Management Plan (DRD 1292MA-001), the contractor shall include an IT Security section that includes how they will develop, implement, and maintain IT Security. This section shall describe the processes and procedures that will be followed to ensure appropriate security of IT resources that are developed, processed, or used under this contract.
e. The Contractor shall encrypt sensitive NASA data at rest (DAR) using the NASA enterprise DAR encryption solution. The Contractor shall encrypt sensitive NASA data in transit using the NASA Public Key Infrastructure (PKI).
f. When the Contractor is located at a NASA Center or installation or is using NASA IP address space, no non-NASA provided external Internet connections shall be allowed under this contract.
g. All information systems provided and/or operated under this contract and in support of this contract are federal information systems. (A federal information system is defined in NIST SP 800-37 (Rev 1), *Guide for the Security Certification and Accreditation of Federal Information Systems* and in 40 U.S.C., Sec. 11331, as an information system used or operated by a federal agency, or by a contractor of a federal agency or by another organization on behalf of a federal agency.) The contractor shall be responsible for meeting the requirements for security authorization, also known as certification and accreditation (C&A), of these information systems, consistent with FIPS 200, *Minimum Security Requirements for Federal Information and Information Systems* and NIST SP 800-37 (Rev 1). A NASA official, determined in accordance with NPR 2810.1, *Security of Information Technology* shall perform the role of the authorizing official for all such information systems

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   (1) The contractor shall use NASA processes, as specified in NASA policy and procedures, to meet the requirements for security authorization of all such information systems.
   (2) For all information systems provided under this contract that store, process or transmit NASA data, NASA will determine the system's FIPS 199, *Standards for Security Categorization of Federal Information and Information Systems* security categorization.

For any other information systems provided under this contract or used in performing this contract, NASA will approve the system's FIPS 199 security category.

(3) The contractor shall ensure that all systems institute information security controls in accordance with NIST SP 800-53, *Recommended Security Controls for Federal Information Systems*.

(4) The contractor shall support all applicable security assessments of each information system. At the discretion of the NASA authorizing official, the contractor shall either perform or provide for the performance of system security assessments, or support independent system security assessments (e.g., third party certification, IG Audits, GAO audits, and self certification), as part of the security authorization and continuous monitoring process.

(5) The contractor shall track identified risks and security vulnerabilities for each information system in the NASA C&A Documentation Repository and Plan of Actions & Milestones (POA&M) Management System and remediate vulnerabilities on a schedule as determined by the NASA authorizing official.

(6) All required system security documentation shall be entered into the NASA C&A Documentation Repository and (POA&M) Management System.

h. The contractor shall identify an IT Security POC for supporting IT security requirements under this contract.

i. The Contractor shall configure and maintain operating system and software on all information systems provided under this contract in accordance with Federal and NASA security configuration policies and guidance.

(1) The Contractor shall apply all relevant Federal system and software security configurations, for example, the Federal Desktop Core Configuration, according to NASA guidance.

(2) All information systems shall be patched with all critical patches (as determined by the product vendor or NASA) in accordance with the NASA Organization Defined Values for NIST SP 800-53 and subsequent revisions.

(3) In some rare circumstances, the NASA Deputy CIO for IT Security or designee may determine that a particular patch must be applied more urgently. In such cases, all information systems shall be patched in the timeframe specified by the NASA Deputy CIO for ITS or designee.

(4) System configurations and patching status for all information systems provided under and in support of this contract shall be reported using the NASA patch reporting environment. Each computer shall either run up-to-date reporting agent software for automated reporting or be reported manually by the contractor. For any computers that cannot run the reporting agent software, a NASA-approved waiver must be obtained in accordance with NASA policy and procedures.

j. All information systems shall be protected by the NASA enterprise anti-malware (including anti-virus and anti-spyware) solution, which provides automated updates of virus definitions at least once every 24 hours and automated logging and reporting. The NASA enterprise anti-malware solution for desktops and laptops is provided by the ACES contract (see P1.6.3.7.3). The NASA enterprise anti-malware solution for servers is provided by the NEDC contract. For any computer that cannot use the anti-malware solution or for which no anti-malware software exists, a NASA-approved waiver must be obtained in accordance with NASA policy and procedures.

(1) The Contractor shall correct or mitigate detected vulnerabilities in accordance with NASA policy, unless directed otherwise by NASA for specific urgent issues.

k. All information systems provided under this contract or used in support of this contract shall be scanned for vulnerabilities in accordance with NASA policy.
   (1) The contractor shall make available all information systems located within the NASA network perimeter for network-based vulnerability scanning by NASA. NASA will coordinate scanning activities with the contractor to the extent possible to ensure that vulnerability scanning creates minimal impact on operations.
   (2) For all other information systems which process NASA data, the contractor shall report to NASA the results of vulnerability scans and remediation, in accordance with NASA guidance.

l. The Contractor shall follow NASA security incident management procedures in accordance with NASA policies and ensure coordination of its incident response team with the NASA Security Operations Center (SOC). The Contractor shall promptly report to the NASA SOC any suspected computer or network security incidents occurring on any systems. The Contractor shall provide all necessary assistance and access to the affected systems so that a detailed investigation can be conducted, problems remedied, and lessons learned documented. Security logs and audit information shall be handled according to evidence preservation procedures.
   (1) The Contractor shall make available logs from any information system to the NASA common logging environment, as requested by the NASA SOC. Electronic raw log data shall be forwarded from the source device to the NASA common logging environment, in accordance with NASA policies, procedures and guidance.
   (2) The contractor shall provide the NASA SOC real-time, electronic access to all asset information and configuration management information for all devices provided under this contract and in support of this contract.
   (3) The contractor shall report the theft or loss of any device that may contain NASA information, in accordance with NASA incident reporting policy and procedures.

m. The contractor shall provide a logging environment that centrally captures and retains logs from all information systems provided under this contract.

n. The Contractor shall ensure that all individuals who perform tasks as a system administrator, or have authority to perform tasks normally performed by a system administrator, demonstrate knowledge appropriate to those tasks. In addition, system administrators shall not be granted elevated privileges to information systems covered under this contract unless they are authorized and have met the training requirements in accordance with NASA policy.

o. Prior to deployment of any IT security services, the contractor shall obtain approval from the MSFC Information Technology Security Manager (ITSM).

p. The contractor shall support the integration of NASA SOC IT security services and technologies into systems provided under this contract and in support of this contract, in accordance with NASA guidance.

q. The contractor shall operate a security program in accordance with MSFC, Agency, Department of Defense (DoD), and Department of Homeland Security directives. At all times, the Contractor shall comply and ensure their employees comply with the requirements of the NASA Security Program as documented in the most current version of NPR 1600.1, *NASA Security Program Procedural Requirement*

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r. When the contractor is required to design, develop, or operate a system of records on individuals to accomplish an agency function, the Contractor shall comply with FAR 52.224-1, *Privacy Act*

Notification and FAR 52.224-2, *Privacy Act* clauses. At all times, the Contractor shall comply and ensure their employees comply with the requirements of the NASA Privacy Management Program.

2.7 Safety

The contractor shall establish and implement an industrial safety, occupational health, and environmental program that (1) prevent employee fatalities, (2) reduce the number of incidents, (3) reduce the severity of employee injuries and illnesses, and (4) protects the environment through the ongoing planning, implementation, integration and management control of these programs in accordance with DRD 1292SA-001. The Safety, Health, and Environmental (SHE) Plan shall address each of the following MSFC SHE core program requirements in detail that are applicable to the contracted effort and include a matrix that identifies where each requirement is addressed:

a. Management leadership and employee involvement.
b. System and worksite analysis.
c. Hazard prevention and control.
d. Safety, health and environmental training.
e. Environmental compliance.

The contractor shall report mishaps and safety statistics to the MSFC Industrial Safety Branch in accordance with DRD 1292SA-002. The contractor shall submit direct to the NASA Incident Reporting Information System (IRIS) or shall use the forms listed in section 15.4 of DRD 1292SA-002 or electronic equivalent to report mishaps and related information required to produce the safety metrics.

2.8 Facilities Management

The contractor shall implement and maintain a uniform approach of managing the use of assigned facilities in accordance with DRD 1292MA-002. In performance of this function, the contractor shall:

a. Maintain documentation as a basis for requesting and recommending additional space and reallocation of assigned space or interior partitions.
b. Maintain floor plans of all assigned facilities to reflect the location of furniture, equipment, telephones, environmental systems and electrical services in equipment areas.
c. Maintain continuous records of changes or movements of equipment, furniture, and telephones to ensure that accountability requirements for all equipment and systems are met.
d. Maintain in MICS, continuous records of changes or movements of personnel providing this information on-line for COTR designated personnel review.
e. Maintain location information in MICS, including number of personnel by location, square footage, and associated lease and maintenance costs.
f. Review and assess MSFC Facilities Office planning activities for impact on OCIO systems and provide comments to designs and shop drawings on MSFC Form 1540.
g. Plan for future facility requirements or expected changes in personnel and equipment locations
h. .

i. Support facility modifications to accommodate personnel space change requirements and new equipment at specified locations scheduling this activity to minimize disruption of daily operations.
j. Obtain approval from the cognizant NASA Facilities Offices before performing any facilities activities at a NASA installation.
k. Track in MICS, the schedule and status information for facilities work requests and facilities projects that affect IT service delivery.
l. Define and document environmental requirements to accommodate equipment.
m. Develop and maintain memoranda of agreement between MSFC and host center/facilities to document requirements to house MITS systems and personnel.

2.9 Quality Management

The contractor's quality system shall be compliant to ANSI/ISO/ASQ 9001:2000, *America National Standard Quality Management Systems Requirements.* The contractor can satisfy this requirement by current registration by a recognized registrar and/or by MSFC audit of their system.

2.10 Phase-Out

The contractor shall support the succeeding contractor during the MITS contract phase-out period. This support includes the transition of all management and technical services to the successor contractor while minimizing operational impacts
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3.0 Information Technology (IT) Security Services

The contractor shall provide IT Security services for MSFC-managed unclassified resources, which include the National Space Science Technology Center (NSSTC), the Michoud Assembly Facility (MAF), and MSFC managed contracts. The contractor shall provide security planning and management, security architecture, security compliance, Continuity of Operations (COOP) and Disaster Recovery (DR), MAF Mobile Emergency Operations Vehicles (MEOV) and security operations in accordance with the latest NASA, National Institute of Standards and Technology (NIST) and Federal Information Security Management Act (FISMA) requirements. Some personnel supporting IT Security Services will be required to maintain a secret clearance (see Attachment J-10).

3.1 Security Planning and Management

In collaboration with the Government, the contractor shall plan and manage information system security across MSFC managed resources. The contractor shall coordinate the design and implementation of practices that assess and quantify risk. In providing these services, the contractor shall:

a. Provide system security life-cycle development planning and develop procedural/technical protective controls for MSFC managed resources.
b. Manage, protect, and track administrative Privacy Act Information (PAI) and proprietary data in accordance with applicable regulations and procedures.
c. Collaborate with government, corporate and academic IT security communities to affect a strong IT security posture.

3.2 RESERVED

3.3 Security Compliance

The contractor shall identify appropriate control mechanisms and corresponding compliance activities to address specific regulatory and NASA requirements. In providing these services, the contractor shall:

a. Conduct monthly full vulnerability scans of the systems managed by OCIO and coordinated with the systems administrators to resolve the vulnerabilities in accordance with NASA policies, procedures, and requirements.
b. Conduct analysis of the vulnerability scan data and patch management data produced from government provided tools.
c. Conduct reviews of certifications and accreditation packages of systems managed by MSFC. The results of the finding shall be presented to the MSFC ITSM for review.

d. Provide support in coordinating IT security audit from 3rd parties and track the findings. The results of the findings should also be used to improve the overall security of NASA systems and network.
e. Compile the metric as required by NASA policies, procedures, and requirements in addition to the metrics that are necessary to enhance the center's IT security program.

3.4 Continuity of Operations Plan (COOP) and Disaster Recovery (DR) Plan

The contractor shall develop, maintain, and test service continuity, contingency, and disaster recovery plans for all systems for which they are responsible. In providing these services, the contractor shall:

a. Develop and maintain a Disaster Recovery Plan in accordance with DRD 1292MA-002 to ensure the orderly recovery from a disaster that may render all or part of information facilities, systems, and equipment inoperable. This plan shall be in accordance with applicable NASA policy NPR 1040.1, *NASA Continuity of Operations (COOP) Planning Procedural Requirement*.
b. Coordinate with information systems and disaster recovery experts across MSFC and NASA to verify integration of procedures and planning techniques.
c. Execute effective measures to protect all systems equipment and data from potential environmental threats.
d. After the occurrence of a disaster, ensure that systems are operational and restore any lost capabilities and data.
e. Develop and maintain a Continuity of Operations Plan in accordance with DRD 1292MA-002.

3.5 RESERVED

3.6 Security Operations

The contractor shall operate and maintain the systems provided by the Government to detect and protect systems from unauthorized access, use, disclosure, destruction, modification, or disruption in services.

3.6.1 Intrusion Detection and Incident Response

The contractor shall provide intrusion detection and incident response for networks and systems managed by the OCIO for all the projects and programs located on the facilities at MSFC, NSSTC, and MAF. The contractor shall perform the following tasks:

a. Respond to systems suspected of viruses, Trojans, or other malware. Coordinate response with the system owners and service providers such as ODIN.
b. Provide analysis on network traffic and system logs of systems suspected of an IT security incident.
c. Implement the tools, policies, procedures and requirements provided by the government.

d. Monitor and administer a local instance of the MSFC provided flow monitoring tool, security event manager, sniffer, and intrusion detection system.
e. Document all cases utilizing a NASA provided tool that is managed by the NASA Security Operations Center (SOC) located at the Ames Research Center.
f. Monitor and administer the MSFC provided proxy that is used as a content filter blocking access to inappropriate sites called out in NASA Procedure Directive (NPD) 2540.1, *Personal Use of Government Office Equipment Including Information Technology* and protect the MSFC private network from zero-day exploit code as well as well know exploits utilizing the http protocols.

3.6.2 Security Engineering and Technical Support

The contractor shall provide technical, administrative, and engineering support for MSFC's instances of the two-factor authentication system and patch management tool. The contractor shall perform the following tasks:

a. Provide engineering and system administration for patch management tools provided by the agency, implementing a patch management program for MSFC managed resources that follow Federal and Agency policy and procedure.
b. Provide engineering and system administration for the MSFC two-factor authentication program. This program is integrated with the Agency's implementation of HSPD-12. The service shall be in accordance with Federal and Agency architecture, policy and procedure. Implement MSFC conversion to and operation of Agency standard IT resource account management system.
c. In concert with Agency requirements, manage and maintain secure authentication services for MSFC, NSSTC, and MAF customers, including token-based and smart card services.
d. Provide system administration for the groups across the servers supporting various organizations with IT systems on the MSFC, NSSTC, and MAF networks.
e. Communications with the various group administrators as to current system issues, metrics and special reporting requirements.

4.0 IT Planning, Policy, Architecture & Integration

The contractor shall provide customer experience management, customer requirements determination and assessment, customer service request, customer satisfaction measurement / customer surveys, integrated communications planning, IT architecture and integration, IT innovation management, IT portfolio management, enterprise architecture, policy, governance, and performance management, IT governance, continuous risk management, project management, special business case development, organization performance measurement, service integration and delivery, directives management, records management, forms management, and Scientific and Technical Information services to ensure IT resources (people, processes, technology, and infrastructure) and functions/services are effectively planned, managed, and integrated with mission, program, and business needs.

4.1 Customer Experience Management

The contractor shall provide and manage a customer service request system and operate a customer support center.

4.1.1 RESERVED

4.1.2 Customer Service Request

The contractor shall receive, process, and execute customer service requests. In performance of this function, the contractor shall:

a. Operate and maintain the on-line service request system for ordering, assigning, tracking, statusing, and archiving customer service requests as part of Service Request System (SRS) in accordance with DRD 1292MA-008.
b. Implement authorized service requests.
c. Provide the necessary coordination between the customer, OCIO resource team for funding verification and the technical support functions required to satisfy the request.
d. Provide monthly reports in accordance with DRD 1292MA-008 to COTR designated personnel that explain status of service requests.
e. Close each service request only after customer notification and acceptance.

4.1.3 (RESERVED)

4.1.4 (RESERVED)

4.1.5 Customer Support Center

The contractor shall receive, track, and resolve customer service problems for Tier 2 and 3 for MITS PWS areas in paragraphs 5.0-8.0. The contractor shall provide the service of Tier 1 support

and problem routing for all MSFC managed or hosted services including Center unique services not in MITS, like Center Operations services. In performance of this requirement, the contractor shall :

a. Operate an integrated customer support center 24 hours a day, 7 days a week.
b. The customer support center will work cooperatively with other help desks to resolve all problems regardless of the initial determination of the origin of the problem.

c. Receive all trouble calls and promptly effect resolution.
d. Operate and maintain the on-line status system to query, update, and display information related to problems and resolutions (DRD 1292MA-008).
e. Provide feedback regarding problem resolution as requested by the customer.
f. Perform trouble reporting and tracking (DRD 1292MA-008).
g. Provide reports of status, summaries, and statistics (DRD 1292MA-008).
h. Verify resolution with the customer prior to closing the trouble call.
i. Provide customer information and assistance regarding the use of Center Operations services.
j. Provide user notification of outages and activities.
k. Upon resolution of a trouble ticket/outage of service, provide the customer written information regarding the reason for trouble/outage, corrective actions taken, and relevant information for any follow-on action.
l. The contractor shall provide the following services in conjunction with the Support Center:
    1. Notification alert services for all emergency events and situations on MSFC.
    2. Serve as the Emergency Operations Center for MSFC during non-prime hours.
    3. Provide severe weather monitoring and off-hour employee alert service.
    4. Provide off-hour telephone answering service on behalf of the MSFC Director and Senior Management staff.

4.2 IT Architecture and Integration

The contractor shall provide an IT innovation management, and an integrated enterprise architecture capability.

4.2.1 IT Innovation Management

The contactor shall implement and manage an effective IT innovation management program that provides a consistent methodology for identifying candidate information technologies that are architecturally compliant, insertion ready, and effectively managed for risk and cost. In support of this requirement, the contractor shall:

a. Implement an integrated approach to capture, evaluate, and track potential ideas and information technology solutions in support of mission needs.
b. Develop, document, maintain, communicate, and disseminate the alignment of the Center's IT innovation management strategy and initiatives through the use of road mapping tools.
c. Develop, implement, and maintain an integrated approach to identify, characterize, and validate candidate technologies for inclusion within the enterprise architecture.

d. Evaluate and report on potential technologies and equipment to determine functionality, feasibility, and merit. Utilize modeling, hands-on testing, market surveys, prototyping, pathfinder techniques and customer participation in evaluation efforts.
e. RESERVED
f. Document and deliver technology obsolescence and retirement plans, and future technology insertion roadmaps.
g. Define requirements and maintain data in a collaborative and integrated web-based repository for capturing, communicating, and disseminating ideas, innovation management strategy, IT evaluation results, technology insertion roadmaps, technology obsolescence and retirement plans, architecture standards and performance.
h. The contractor shall develop, provide, implement and maintain the OCIO Innovation Management Plan.

4.2.2 (RESERVED

4.2.3 Enterprise Architecture

The contractor shall implement and maintain an integrated Enterprise Architecture capability and program for the Marshall Space Flight Center. In support of this requirement, the contractor shall:

a. Develop and document information technology standards and solutions that support the integration of business, application, information, and technology architectures.
b. Develop composite enterprise architecture artifacts that accurately represent the as-is and future states of the enterprise, and maintain an integrated enterprise architecture repository.
c. Participate in standards and forum boards to influence the direction of next generation standards and architectures.
d. Support EA Service Reviews to facilitate service integration into the as-is and future state Center/Agency architecture.

4.3 Policy, Governance, and Performance Management

The contractor shall support the execution of the Center's established IT governance program and provide continuous risk management capability for the contract.

4.3.1 IT Governance

The contractor shall support the execution of the Center's established IT governance model, processes, and policies to ensure well-informed strategy, policy, architecture, standards, and investment decisions.

4.3.2 Continuous Risk Management

The contractor shall provide an integrated, effective and continuous risk management process consistent with NPR 7120.5, *NASA Program and Project Management Processes and Requirements*

and NPR 8000.4, *Agency Risk Management Procedural Requirements*. In support of this requirement, the contractor shall:

a. Implement, maintain, and report a continuous risk management program for systems developments, operations and business following standard NASA continuous risk management policies and practices.
b. Report risks and the associated status in accordance with MSFC approved risk management plans and work instructions.
c. Pursue continuous risk management activities to maintain safety, schedule, cost and technical performance.

4.3.3 (RESERVED)

4.3.4 Special Business Case Development

The contractor shall conduct and report the results of COTR-directed special studies that include the development of special business cases, hypothetical investigations, benchmarks, standards, migration, pricing, and trade studies in accordance with DRD 1292MA-002. These services are considered within the scope of this PWS and shall not, in general, be construed as changes within the meaning of the "Changes -- Cost-Reimbursement -- Alternate II" clause of this contract as long as the total number of special studies is not greater than 5 per contract year (See Clause H.8).

4.3.5 (RESERVED)

4.4 Service Integration and Delivery

The contractor shall provide support services for directives management, records management, forms management, and scientific and technical information.

4.4.1 Directives Management

The contractor shall provide and perform directives management services to ensure an integrated, well-managed and effective Center directives management program. In support of this requirement, the contractor shall:

a. Conduct reviews of draft Center and Agency directives evaluating and providing comments as appropriate to ensure compliance with Center and Agency format and content requirements.
b. Analyze, report, and maintain performance history of the directives review process to improve management visibility and decision making.
c. Maintain and enhance the Directives Master List and the Directives Review Process providing technical support for all Directives Control Board (DCB) meetings.

4.4.2 Records Management

The contractor shall perform and provide records management processes to ensure an integrated, well-managed, and effective Center records management program. In support of this requirement, the contractor shall:

a. Define requirements and maintain data in the Center wide web-based records plan management database to allow records owners to create, update, and maintain official records plans inventories.
b. Conduct records review process, participate in records management working groups and maintain records plans and documentation.

4.4.3 Forms Management

The contractor shall provide and perform forms management to ensure an integrated, well-managed and effective Center forms management program. In support of this requirement, the contractor shall:

a. Provide design, development, and integration support of MSFC forms in accordance with NASA and MSFC forms policy.
b. Create, deploy, and maintain MSFC electronic forms.
c. Support MSFC implementation of a new Agency electronic forms system to include the conversion of MSFC electronic forms to Web based forms that perform simple to complex processes such as, calculations, routing, tracking, database communication, digital signatures, dynamic form display, data validation, and business logic.
d. Provide artwork and coordinate forms duplication with MSFC printing and reproduction.
e. Review and resolve compatibility issues and provide forms technical support to Center users.
f. Provide requirements for an electronic forms review tool and provide support in conducting yearly evaluation of all MSFC forms.

4.4.4 Scientific and Technical Information

The contractor shall provide a Scientific and Technical Information (STI) process to ensure an integrated, well-managed and effective Center STI program. In support of this requirement, the contractor shall:

a. Provide NASA Form (NF) 1676 Document Availability Authorization (DAA) clearance of STI generated by civil service and contractor personnel in accordance with NASA/MSFC STI policy.
b. Review, evaluate, and coordinate approval/clearance of STI document.
c. Maintain STI clearance records and documents.
d. Prepare STI reprint orders for processing.
e. Coordinate transfer of DAA and STI documents to the Center for Aerospace Information (CASI).
f. Define requirements for an automated DAA system

5.0 Telecommunications Services

The contractor shall provide telecommunications services to support the MSFC and MAF customers. These include telephone, facsimile, Cable Plant, Radio Frequency (RF) Spectrum management, emergency telecommunication and other services.

5.1 Telephone Services

The contractor shall operate and maintain telephone services at MSFC and MAF. These services also include development or acquisition of enhancements and implementation of enhancements. In providing this service, the contractor shall:

a. Operate and maintain the telephone and voice mail systems and associated equipment.
b. Provide telephones and associated features such as call forwarding, conferencing, call pickup, transfer, voice mail, and other features.
c. Install, relocate, configure, and maintain the telephone instruments and other end-service equipment.
d. Install, configure, and maintain small conferencing units for the office environment.
e. Provide overhead paging service capable of broadcasting voice messages in specified areas.
f. Reserved.
g. Operate and maintain the Voice over Internet Protocol (VoIP).
h. Provide specification of requirements, design, implementation, procurement, and operations of local telephone service, including dial-tone, inbound/outbound trunking, fiber to near-site locations, and access to 911.
i. Provide specification of requirements, design and interface to long distance switched voice and data services, provided by NETWORX.
j. Provide operator assistance for placing international calls, directory assistance, and other operator-required functions.
k. Compile and prepare the online MSFC Telephone Directory in accordance with DRD 1292MA-002.
l. Provide and maintain telephone service for fire rescue locations as designated by the MSFC Safety Office. Fire rescue locations are designated in multi-story buildings to assist the handicapped with evacuation in case of a fire.
m. Provide, test, and maintain power fail telephones. Power fail telephone circuits do not connect to or go through the MSFC telephone system. The power fail telephones shall operate in the event the MSFC telephone system loses power or becomes inoperable.

5.2 Facsimile Services

The contractor shall provide facsimile services at MSFC and MAF. These services shall include maintenance of existing equipment and processes, development or acquisition, and implementation of enhancements. In providing this service, the contractor shall:

a. Maintain the existing facsimile machines and services.
b. Procure, install and maintain facsimile hardware and services including those appropriate for the transmission of Government classified documents

c. Procure, install and maintain facsimile hardware and software to integrate this service with MSFC electronic mail services.

5.3 Cable Plant

The contractor shall provide Cable Plant Services for all outside cable plant media (fiber and copper) and all fiber optic media (both inside and outside) support for MSFC and MAF. This shall include all installation and maintenance support along with field location support. The contractor shall maintain cable plant documentation in accordance with DRD 1292MA-002. The contractor shall maintain a Class 3 Asbestos Crew which shall install various types of wiring (e.g. data, telephone, AVS, EWS) in buildings with asbestos containing material. The Asbestos Crew is required to undergo annual training to certify ability to work in above ceiling asbestos areas and performed in accordance with the SHE Plan DRD 1292SA-001 and MPR 1840.4, *Marshall Asbestos Program.*.

5.4 Radio Frequency (RF) Spectrum Management

The contractor shall provide labor, material and other support required for the total operation and management of RF services at MSFC and MAF. These services include identification, planning, and coordination of RF spectrum requirements, allocation and assignment of frequencies, maintenance of frequency assignment records, and detection and reporting of RF Interference (RFI). The contractor shall provide maintenance of existing capabilities, development or acquisition, and implementation of enhancements for fixed, portable, and mobile radios as well as cellular signal enhancements and cellular carrier operated facilities.

5.5 Emergency Telecommunications

The contractor shall provide emergency telecommunications to MSFC and MAF. These services shall include maintenance of existing equipment, development or acquisition, and implementation of enhancements in support of emergency telecommunications, including Emergency Warning Systems support, and operations support services during disaster/ emergency situations such as, but not limited to, fire, explosion, accident, bomb threat, civil disturbance, terrorist-related incidents, flood, ice, snow, and tornadoes.

5.6 MSFC and MAF Electronic Security System

The contractor shall provide Electronic Security System (ESS) services for MSFC and MAF.

5.6.1 Electronic Access Control

5.6.1.1 Interior and exterior electronic door systems. The contractor shall provide badge readers, electronic lock control equipment, crash bars, sensors, emergency bypass per life safety code, connecting wiring, and preventative and trouble-oriented maintenance.

5.6.1.2 Vehicle gate (fence, rolling, crash barrier and swing-arm) and pedestrian turnstile systems. At MSFC only, the contractor shall provide gate and turnstile equipment, installation, badge readers, electronic lock control equipment, traffic sensors, emergency bypass per life safety code, connecting wiring, and preventative and trouble-oriented maintenance. At MSFC only, the contractor shall replace gate operators, and replace turnstile components and will consult with outside vendor to replace physical gate, turnstile, or other components when necessary.

5.6.1.3 Duress alarms, door contacts, sensors. The contractor shall provide duress alarms, contact and sensor equipment, installation, connecting wiring, preventative and trouble-oriented maintenance.

5.6.2 Video Surveillance System

5.6.2.1 Interior and Exterior Surveillance Cameras. The contractor shall provide cameras, camera-supporting equipment, interconnecting wiring, installation of interior and exterior cameras, interface with Enterprise Physical Access Control System (EPACS) and preventative and trouble-oriented maintenance.

5.6.2.2 Digital Video Recorders (DVR). The contractor shall provide DVR equipment, installation, interconnecting wiring, interface with EPACS, preventative and trouble-oriented maintenance of DVR's to capture and store surveillance video.

5.6.2.3 The contractor shall provide video surveillance support to Protective Services Office investigations.

5.6.3 Regional Administration

5.6.3.1 The contractor shall provide equipment, installation, interconnecting wiring, interface with the EPACS, preventative and trouble-oriented maintenance for all Center Premise Equipment (CPE) which includes but is not limited to card readers, cameras, DVR's, input boards, reader interfaces, Communication Servers, PELCO matrix switcher, duress alarms, contact alarms, and additional security devices that will be required to meet future NASA and Federal physical security guidelines.

5.6.3.2 The contractor shall be responsible for developing, updating, and maintaining the CPE Information Technology (IT) systems security plan in accordance with NASA and Federal directives and policies.

5.6.3.3 The contractor shall be responsible for the installation, maintenance, and troubleshooting of all Personnel Identification Verification (PIV) badging workstations. The Contractor will be responsible for installing the security client on all PIV enrollment and associated workstations and will provide continual troubleshooting and maintenance.

5.6.3.4 The contractor shall provide security reports in support of the Protective Services Office (PSO) operations, and obtain and transmit video footage in support of PSO operations.

5.6.4 General Support

5.6.4.1 Physical Security Systems Engineering Support. The contractor shall:

a. Assist PSO Physical Security Specialists (PSS) during evaluation of new and existing facilities to determine appropriate methods for safely securing those facilities utilizing ESS equipment.
b. Design, document, and procure all equipment, circuits, installation labor, and warranty support required to provide the systems to support the methods prescribed by PSO PSS.
c. Coordinate with the Facilities Office, regarding ESS installation and design on all building construction projects.

5.6.4.2 Cable installation. The contractor shall:

a. Be responsible for cable installation on all activities, to include those in areas identified as asbestos.
b. Participate in asbestos installations at MSFC, and work in conjunction with the Center asbestos team.

5.6.5 PSST Additional Requirements

5.6.5.1 The contractor shall attend training to maintain existing and new certifications required to maintain, upgrade, and repair the ESS.

5.6.5.2 The contractor shall participate in meetings and telecons as required.

5.6.5.3 The contractor shall maintain regular interface with MSFC PSO ESS Lead regarding all ESS activities.

5.6.5.4 The contractor shall maintain regular interface with the NASA Enterprise Applications Competency Center (NEACC).

5.6.5.5 The contractor shall maintain an on-hand inventory of ESS equipment for maintenance and repairs which will be migrated into the MSFC Management Information and Control System (MICS) production inventory system.

5.6.5.6 The contractor shall provide all vehicles to include specialty vehicles and tools required to perform all ESS operations.

5.6.5.7 The contractor shall incorporate and support the integration of emerging technologies into the ESS.

5.6.5.8 The contractor shall obtain and maintain the appropriate level background investigation required for their designated position.

5.7 Other Services

The contractor shall provide other telecommunications services at MSFC and MAF required to meet customer requirements. These services shall include maintenance of existing processes, development or acquisition, and implementation of enhancements. In providing these services, the contractor shall:

a. Operate and maintain a central distribution process for voice, video, and data products (incoming and generated)
b. Provide and maintain dedicated transmission services between local customers and host computer systems.
c. Provide procurement support for vendor circuits from MSFC to offsite NASA affiliated buildings. These circuits include, but are not limited to T-1, metro-Ethernet, and dark fiber and are used to extend the MSFC telephone system, MSFC Local Area Network, MSFC Cable TV system to offsite buildings. These offsite buildings are located within Huntsville or Madison, Alabama.

6.0 MSFC Applications and Web Services

The contractor shall provide computer applications and web services for MSFC customers; including areas of Business and Administration; Science and Engineering; and Document Repository. These services shall include development, sustaining and production support in compliance with established software and web standards. In providing these services the contractor shall:

a. Maintain applications and web portfolio information in the Applications Inventory Module (AIM), a government provided and contractor maintained application, in accordance with DRD 1292MA-002. The contractor shall ensure that AIM is available for access and use by all MSFC organizations and contracts to support their data entry of custom developed or commercial-off-the-shelf (COTS) as required by the OCIO.
b. Provide development and sustaining application support for both custom developed and COTS software which includes: definition and specification, requirements analysis and feasibility studies, design and development, configuration management, user assistance and training, documentation, ongoing maintenance (repairs and upgrades), and other operational support.
c. Evaluate, procure, install, integrate, test, train, assist users, administer and provide other operational support. This service also includes application-related consulting, subject matter technical experts, and technical management.
d. Adhere to life cycle support consistent with the Software Engineering Institute (SEI) Level 2 Capability Maturity Model Integration (CMMI) assessment in all areas of software development with Government approval at logical breaks in the lifecycle.
e. Adhere to the guidelines for software release approval as outlined in MPR 2800.4, *Marshall Operational Readiness Review (MORR)* for *Center Applications and Web Sites*.
f. Adhere to Federal, Agency and Center policies in the Enterprise Architecture area during development and to include the provision of tools for capturing and reporting data to support the EA landscape at MSFC.
g. Provide data preparation, data entry, initiation and monitoring of production programs, user assistance, and generation, review and distribution of reports.
h. Provide application administration on infrastructure hardware resources to include adherence to the OCIO guidelines for data structures, development tools, and approved platforms.
i. Implement and audit MSFC web environments for web site compliance to Federal laws and Agency and Center policies.
j. Provide Data Administration (DA) in the planning, organization, design, control, and documentation of data resources for all OCIO-supported systems in accordance with DRD 1292MA-002 to include the following:
    1. Establish and implement consistent overall DA strategies, such as data definition, logical data modeling, data resource life cycle management, data security, data integrity, and quality assurance
    2. Establish, implement, and maintain a DA program that incorporates the following sub elements: DA policies, procedures and standards, data architecture, data dictionary and models, orientation and training, and quality assurance.
    3. Use Service Oriented Architecture (SOA) principles and services to facilitate cost effective means for data exchange within the supported applications and serve as MSFC expert in SOA to assist other organizations with use of and understanding the SOA environment.

The contractor shall develop content for inclusion into the NASA Web Portal. All required policies and procedures currently approved at the Agency level for this environment shall be adhered to include, but are not limited to, Web Portal guidelines.

In support of all MSFC organizations, the contractor shall define and implement the set of processes and activities necessary to integrate MSFC applications, including those included under this contract and other applications across the Center, requiring account management into the NASA Account Management System (NAMS).

The contractor shall integrate the delivery of applications and web services to the maximum extent feasible.

All services to be provided may be routinely added or deleted throughout the period of performance of this contract (See Clause H-8) as long as the total number of applications and websites to be provided falls within the parameters set forth in Table J-1-1 below:

Table J-1-1
Applications and Websites Parameters

Category	*Category Description*	*Number of Applications/Websites*
1	***MSFC-wide application service or web site, critical or highly visible or complex application/web service.***	***36 – 50***
2	***Medium scale application service or web site, less complex, with medium criticality***	***55-95***
3	***Administrative and support application service/web site, or small user community***	***155-245***

The contractor shall provide Applications and Web Services Reports in accordance with DRD 1292MA-008.

6.1 Center Business and Administrative Application and Web Services

The contractor shall provide application and web services for the Center's Business and Administrative organizations including the Office of the Center Director and staff offices of Procurement, Chief Financial Officer, Safety and Mission Assurance, Equal Opportunity, Chief Counsel, the Office of the Chief Information Officer, the Office of Human Capital Management (OHCM), Office of Strategic Analysis and Communications (OSAC), and Office of Center Operations.

Examples of applications services the contractor shall provide to the Center Director and staff offices are the Director's Office support, the Centerwide Action Item Tracking System (CAITS),

CFO core applications support, the electronic MSFC Resources Planning Tool (eMRPT), and Corrective Action System (CAS. Examples of web sites developed for these organizations include internal sites for center staff notes and center events, presentations and charts for Center executives, equal employment opportunity outreach, export control and safety information.

The contractor shall provide applications services to the Office of the Chief Information Officer such as: the Problem Management and Dispatch system (PMDS); Management Information Warehouse (MIW); Service Request System (SRS) and the Marshall Asset Management System (MAMS).

The contractor shall provide applications services to the Office of Human Capital Management (OHCM) such as the MSFC Personnel Information System (MPIS), and MSFC Staffing Plan System.

Examples of applications services that the Contractor shall provide to the Office of Center Operations include: the Computerized Maintenance Management System (CMMS)*);* and NASA Supply Management System (NSMS) MSFC site unique support.

The contractor shall provide applications services to the Office of Strategic Analysis Communications to include: Program electronic Project Online Risk Tool (ePORT).

Examples of web sites developed for these organizations include internal, external, and customer focused sites as well as, highly-specialized educational sites; Center historical sites; and sites specifically designed for news media relations.

6.2 Center Science and Engineering Application and Web Services

The contractor shall provide applications and web services to support MSFC's science and engineering organizations that include, but are not limited to, the Engineering Directorate, Space Shuttle Propulsion Office, Ares Projects Office, and Science and Mission Systems Office.

Examples of these applications and services provided to these organizations are NASA Structural Analysis (NASTRAN) support, Structural Load Test Measurement Acquisition System (SLTMAS), Engineering Technology Development Office Database support, Antenna Range Data Collection, Materials and Processes Technical Information System (MAPTIS), Electromagnetic Compatibility (EMC) support, Global Reference Atmospheric Model (GRAM) support, NASA Standards support, Configuration Management, Advanced Concepts support, Applications Administration, Dynamic Data Analyzer production support, National Space Science and Technology Center (NSSTC) support, Microgravity applications and the Integrated Engineering System (IES).

Examples of web sites developed for these organizations include internal, external and customer focused site for Engineering Directorate and Science and Mission Systems Office; the Discovery and New Frontier External Website; Environmental Control and Life Support System; Multi-Purpose Logistics Module Website; and the Radiation Hardened Electronics for Space Environments.

6.3 RESERVED

6.4 Documentation Repository

The contractor shall provide documentation repository services required to meet customer requirements. These services shall include operation/maintenance of existing processes, development or acquisition, and implementation of enhancements. In providing these services, the contractor shall:

a. Develop, provide, enhance, and maintain content management, web services, and associated workflow applications for MSFC Offices and Directorates. Examples of Repository-supported applications and web services include the Documentum-based Repository Electronic Documentation Management System (EDMS), and the following custom web applications within the EDMS environment: the MSFC Directives Master List, MSFC Directives Review Process (a workflow application), MSFC Forms Master List, MSFC Facilities Documents web page, NASA Competency Center Document Library, and the MSFC Electronic Records Staging Area (ERSA).

b. Provide systems integration, application development, and electronic records management support between the Repository Electronic Documentation Management System (EDMS) and designated NASA engineering data and knowledge management systems. Examples of NASA systems that are to be integrated with the Repository EDMS include: the MSFC Integrated Engineering Capability, Design and Data Management System (IEC DDMS), Marshall Engineering Knowledge Management System (ME KM), and the NASA Technical Standards System.

c. Provide application development, maintenance, and enhancement of custom databases to support MSFC technical documentation, knowledge management, and records management requirements. Examples of existing custom databases that are to be supported and maintained include: the MSFC Records Management Oracle database, and the Documentation Distribution Requirements List (DDRL) Oracle database.

d. Provide technical expertise and application administration for all software required including Documentum.
e. Receive, manage, store, and distribute officially released engineering drawings, associated technical documentation, and standardization documentation.
f. Transition from paper-based to integrated electronic documentation management, including receiving, indexing, storing, distributing, and appropriate archiving
g. Maintain proprietary, restricted-access and export control document files in accordance with relevant MSFC and NASA Directives and related regulations and guidelines.
h. Maintain and transition legacy master microfilm aperture card file and microfiche files.
i. Prepare in acceptable media and formats any official record documents being transmitted, through coordination with the MSFC Records Manager, to the National Archives and Records Administration (NARA) for archival purposes.
j. Maintain the MSFC Records Staging Area (RSA).
k. Develop and maintain the Marshall Technical Report Server (MTRS).

7.0 Computing Services

The contractor shall provide computer systems, virtual machines and environments, distributed servers and peripheral services for existing/established and future systems to support the application services described in paragraph 6.0, as well as other MSFC specific administrative, business, engineering and scientific applications which may reside outside the scope of paragraph 6.0. The contractor shall support of the current computing, storage and backup infrastructure for the NEACC lines of business. These applications execute on servers as well as standard desktop/laptop computers. System locations shall include, but not limited to, MSFC Building 4663, the National Space Science and Technology Center (NSSTC) located on Bradford Drive in Huntsville, AL, and various laboratories and server rooms across the MSFC campus. These distributed elements of the infrastructure primarily support the NEACC ICAM (Identity, Credentials and Account Management) line of business. The contractor shall apply paragraph 7.0 requirements for MSFC managed systems associated with the Michoud Assembly Facility (MAF). The contractor shall be required to perform short term, temporary work at the MAF facility.

A simplified approach to the MSFC Computing Services (MCS) scope of work is the DABO model, which is defined as Design, Acquire, Build, and Operate. In order to satisfy this model's requirements, the contractor shall provide engineering, design, development, acquisition, build, integration, implementation, system testing, operations support, event management, systems administration, database administration, backup and storage, IT Security support, configuration management and business continuity. This also includes, but is not limited to documentation, drawings, pricing methodology, budgeting, schedule, maintenance, consolidated system and system software license management and any required training and training material (per DRD 1292MA-002).

During the period of performance of this contract the number and types of managed systems and items of hardware to be maintained may be routinely added or deleted. These changes are within the scope of this PWS and shall not, in general, be construed as changes within the meaning of the "Changes -- Cost-Reimbursement -- Alternate II" clause of this contract as long as the total number of computing systems to be managed is not less than 500 and not greater than 2,000 and the total number of hardware items to be maintained is not less than 4,000 and not greater than 15,000 (See Clause H.8).

This work shall be integrated with the service offerings that emerge as part of the NASA Enterprise Data Center (NEDC) and NASA Integrated Communications Services (NICS) acquisition. The MITS Contractor will serve as a front-line integrator and manage the utilization and business administration functions of acquired NEDC and NICS service offerings as appropriate. These services shall include, but are not limited to, Data Center housing and WAN/LAN network connectivity.

The contractor shall maintain, support and utilize the existing Remedy system for managing the work flow for system issue resolution, system enhancements, and new project implementations. The contractor shall maintain, support and utilize the existing Remedy system for developing and delivering cost estimates.

The nominal support requirement for this service is normal duty hours, Monday through Friday, and performing remote monitoring with on-call support at all other times. Additional support shall be required during major events, which includes, but is not limited to system issues, and is based on scheduled customer requirements. This additional support will result in after hours, weekend, or holiday work.

7.1 Engineering Support

The contractor shall provide systems engineering and sustaining engineering support functions for existing/established and future systems. A system typically includes the combination of hardware equipment and systems software to support application requirements. Systems software includes operating systems, compilers, database management systems, transaction management systems, switching systems, performance and utilization tracking systems, libraries, utilities, and other software necessary for the operation and execution of IT systems. In performance of this function, the contractor shall:

a. Conform to the MSFC Enterprise Architecture Model.
b. Maintain and update customer requirements in accordance with DRD 1292MA-002.
c. Perform, in accordance with DRD 1292MA-002 for business cases and trade studies to maintain, balance, and optimize requirements allocations across subsystems.
d. Perform system performance studies, recommending appropriate changes to eliminate potential system bottlenecks, resources conflicts and system overloads in accordance with DRD 1292-MA-002.
e. Isolate problems in systems and execute proper resolution, including status reports, and documenting of changes in accordance with DRD 1292MA-002.
f. Provide capacity analysis and planning recommendations based on analysis and changes in requirements and technology in accordance with DRD 1292MA-002.
g. Provide hardware and systems software enhancements to meet customers' requirements in response to changing workloads and technologies.
h. Provide statuses of work performed as requested.

7.1.1 Design, Development and Acquisition

The contractor shall design, develop, prototype and acquire/procure IT systems to meet customer requirements. Based on customer requirements, existing customer systems, and customer funding, design, development and acquisition work may encompass, but is not limited to production, testing, development and staging systems. In performance of this function, the contractor shall:

a. Define requirements that shall include collecting and documenting customer (including written buyoff) or system requirements in accordance with DRD 1292MA-002.
b. Analyze the defined requirements ensuring that functionality, reliability, availability, maintainability, security, affordability, and policies and procedures are addressed. Perform
c. systems engineering trade studies to optimize requirements allocations across subsystems in accordance with DRD 1292MA-002.
d. Develop and document designs consistent with generally accepted engineering guidelines and practices.

e. Electronically store, backup, update and maintain a library of all approved engineering drawings and designs.
f. Maximize commonality and the use of COTS components.
g. Coordinate external interface designs.
h. Conduct design reviews.
i. Develop engineering prototype hardware and software components, subsystems, and systems to verify design and certify requirements.
j. Deliver multiple design options based on cost, feasibility and maintainability in accordance with DRD 1292MA-002.
k. Develop and deliver cost estimates.
l. Acquire, procure, fabricate, assemble, and modify components, systems and subsystems.
m. Provide statuses of work performed as requested.
n. Support partnerships with industry, academia, and government agencies to accelerate and/or assist in the deliverance of customer requirements and deadlines.

7.1.2 Systems Build, Integration, and Testing

The contractor shall perform system builds and integration of hardware and software into operational configurations of computational systems. The contractor shall ensure that all elements of the system cohesively function as a fully integrated, operational system. The contractor shall perform testing of systems and system components as required for proper operation. In performance of these functions, the contractor shall:

a. Build systems and associated system components.
b. Ensure customer-established functional requirements are met.
c. Ensure conformance with the applicable federal standards.
d. Ensure interoperability with existing systems.
e. Ensure design concepts are not inadvertently changed during the integration process.
f. Perform verification and validation testing independent of the design organization.
g. Perform technical reviews of integration and testing activities.
h. Provide statuses of work performed as requested.

7.1.3 Implementation

The contractor shall manage and provide the installation, integration of hardware, systems software, services and applications software components into fully operational systems and verify satisfaction of the customer's performance requirements. In performance of this function, the contractor shall:

a. Assemble, install, connect, inspect and "stage" the systems.
b. Integrate, verify functionality, and document implementation of the services.
c. Perform verification testing of the systems under simulated load conditions, and assess failure modes of the systems.
d. Provide the customer written instructions that contain all relevant information for reporting a problem related to the service, equipment or software
e. .
f. Fully manage the implementation to operational process.

g. Provide statuses of work performed as requested.

7.1.4 Installation

In performance of this function, the contractor shall:

a. Install the components into a fully operational configuration to meet the customer requirements.
b. Schedule implementations to minimize disruptions or impacts to services.
c. Verify that the connections, support equipment, and software for the system have been properly installed.
d. Ensure property control requirements (e.g., identification tags and stickers) are met (as defined in the approved Government Property Management Plan, which is prepared in accordance with DRD 1292LS-001.
e. Provide statuses of work performed as requested.

7.1.5 Assessment and Acceptance Testing

In performance of this function, the contractor shall:

a. Verify that the system is installed properly, and that the system satisfies customer's requirements using acceptable test and assessment methods, and written customer buyoff, as appropriate.
b. Conduct an acceptance review with CIO and customers presenting a summary of the verification results.
c. Provide statuses of work performed as requested.

7.2 Operations

For operational systems, the contractor shall perform the following functions:

a. Adhere to a standard and approved operations model.
b. Provide and maintain event management functions.
c. Monitor System and sub-system efficiency and perform troubleshooting and tuning of systems, subsystems, components, peripherals, and interfaces.
d. Provide Configuration Management in accordance with DRD 1292CM-001.
e. Perform regular and scheduled maintenance which includes but is not limited to patches, upgrades, and performance tuning.
f. Develop and maintain an approved strategy for systems software licenses purchases, installation and activation, as well as updated records of these activities in accordance with DRD 1292MA-002.
g. Provide statuses of work performed as requested.

7.3 System Administration

The contractor shall perform system administration functions for existing/established and future systems. Responsibilities shall include the following:

a. Provide and maintain operating systems, database management systems, compilers, libraries, and all other systems software necessary for the operation, execution and security of the computer systems.
b. Operate and maintain computer, peripheral and data acquisition systems, to include system initializations and recoveries, storage and backup management, and print production and dissemination.
c. Provide program and data security, scheduling, and quality control.
d. Provide security support as required by Paragraph 3.0, in particular, adhering to new security bulletins and installation of patches to fix known vulnerabilities as well as working within restrictions involving firewalls and other security-related constructs, maintaining compliance with NASA Incident Response Center (NASIRC) bulletins, utilizing Secure Shell for host authentication, user authentication, and encryption, and the use of Transmission Control Protocol/Internet Protocol (TCP/IP) wrappers and System monitoring for anomalies and security break-in attempts.
e. Provide account management documentation of users to include: addition and deletion of user ID's, disk quotas, accounting and access control, utilization reports, consultation on advancing technologies, video and imaging support and data visualization in accordance with DRD 1292MA-002.
f. Provide risk analysis and management that shall include continual identification and assessment of technical, schedule, cost, and organizational risks involved with the operation of systems in accordance with DRD 1292MA-003.
g. Provide statuses of work performed as requested.

7.4 Database Administration

The contractor shall perform database administration functions for existing/established and future systems which includes but is not limited to analyzing, planning, installing, testing, implementing, maintaining, tuning, and managing databases. The contractor shall also provide statuses of worked performed as requested.

7.5 Backup and Storage

The contractor shall perform backup and storage functions which include but are not limited to the following:

a. Provide, maintain and manage customer storage, backups and restoration of the systems including all system files, file systems, directories, and/or user files.
b. Monitor storage and backup systems for efficiency and utilization.
c. Provide, as needed, engineering/architectural services for existing and newly acquired backup and storage systems.
d. Provide statuses of work performed as requested.

7.6 Hardware and Systems Software Maintenance

The contractor shall be responsible for hardware and systems software maintenance which utilizes a customer funded agreement between the customer and the contractor. At NASA's discretion and

timeline, the contractor shall be required to develop, implement and maintain a more cost effective method for this work.

The contractor shall maintain, in a fully operational condition, all hardware and systems software for those systems which the contractor has responsibility. Items to be maintained, consistent with the categories of hardware and systems software described in this PWS, will be routinely added or deleted throughout the period of performance of this contract. In performance of this function, the contractor shall:

a. Prepare, implement, and maintain the Operability/Maintainability Plan in accordance with DRD 1292RM-001.
b. Utilize existing Computing and Communications Asset Information Management System (CCAIMS) for tracking and logging operational failures, incidents, discrepancies, problem disposition and resolution, maintenance and repair activities, all in accordance with DRD 1292MA-008.
c. Prepare and deliver status reports providing information on outages, such as component involved, period of downtime, and corrective actions in accordance with DRD 1292MA-008.
d. Compile and maintain a list of key contacts responsible for coordinating and conducting the required hardware and systems software maintenance functions in accordance with DRD 1292MA-002.
e. Maintain warranty protection and conditions for equipment in warranty.
f. Maintain vendor subscriptions describing and providing updates and enhancements.
g. Maintain a complete, up-to-date, and accurate list of spare parts and related material necessary to maintain the equipment in accordance with DRD 1292MA-002.
h. Ensure availability of parts for both maintenance and production functions.
i. Maintain a real time, up-to-date service record for each system. The record shall include: the date and type of equipment, service performed, list of parts used and costs, staff-hours utilized, and downtime, or time not available for use of equipment in accordance with DRD 1292MA-002.
j. Maintain a working relationship with vendors or other NASA Centers necessary to obtain required items or maintenance in a timely manner.
k. Maintain up-to-date vendor documentation for all systems in accordance with DRD 1292MA-002.
l. Coordinate maintenance activities with customers, other service providers, and other contractors.
m. Maintain a complete, up-to-date, and accurate list of systems software licenses.

7.6.1 Preventive Maintenance (PM)

The contractor shall perform PM, defined as maintenance performed by the contractor that is designed to keep the hardware and systems software in proper operating condition. The PM is performed on a scheduled basis, normally during the Principle Periods of Maintenance (PPM) defined for each system in the Operability/Maintainability Plan in accordance with DRD 1292RM-001.

a. In performing PM on hardware equipment, the contractor shall:

1. Develop PM schedules that minimize disruption to customer operations. Provide PM schedules in accordance with DRD 1292RM-001
2. .
3. Perform adjustments, cleaning, lubrication, and replacement of parts as specified according to published maintenance procedures.
4. Install latest releases of Field Change Orders (FCO's) and other hardware updates.

b. In performing PM to software, the contractor shall:
   1. Acquire, test, and install systems software updates. Systems software tests and installations shall normally be performed during scheduled system test periods.
   2. Track and renew system software licenses in accordance with DRD 1292MA-002.
   3. Evaluate vendor-supplied updates or patches for applicability.
   4. Implement system software releases.

7.6.2 Remedial Maintenance (RM)

The contractor shall perform RM, defined as that maintenance performed which results from equipment and software failure. It is performed as required on an unscheduled basis. RM shall be performed on all hardware and software elements specified in this contract. In performance of this function, the contractor shall:

a. Perform RM promptly after notification that the component is inoperative.
b. Ensure that the RM is performed to meet the customer's requirements and minimizes operational impact to the customer.
c. Plan, implement, and enforce operational procedures to ensure that the system continues to operate while any failed component is being replaced. Document operational procedures in the Operability/Maintainability Plan in accordance with DRD 1292RM-001.
d. Ensure that the maintenance tools, spares, procedures, skills, and response times are adequate to meet the requirements of the approved Operability/Maintainability Plan in accordance with DRD 1292RM-001.

7.7 Security Support

In accordance with Paragraph 2.6 requirements, the contractor shall develop, document, maintain, and manage operational and technical IT security policies, plans, procedures, and controls for all systems. For each of these services, the contractor shall integrate the IT security policies, plans, procedures, and control measures into their full life cycle, and shall test and review these policies, plans, procedures, and controls for adequacy and compliance as approved by NASA.

7.8 Configuration Management and Control

The contractor shall prepare, implement, and maintain a Configuration Management Plan which describes the technical and administrative functions necessary to identify and document the technical requirements of a system or project, control changes, deviations, and waivers to these technical requirements, and record and report change processing and implementation status in accordance with DRD 1292CM-001. The contractor shall maintain as-implemented systems

configuration information to include, but is not limited to, vendor, hardware model numbers, software revision levels, user interface details, location and customer.

8.0 Audio Visual Information Services

The Contractor shall provide management, operations, and production for Audio Visual Information Services (AVIS) to include, but not limited to, Animation & Interactive Multimedia, Graphics & Publication, Photographic Services, Reproduction, Television & Streaming, and Special Events Administration and Support Services. The contractor shall provide each service in accordance with applicable laws, regulations, NASA and MSFC regulatory guidelines.

The contractor shall research and document emerging technologies in the performance of all AVIS services to utilize these technologies as economically feasible. The contractor shall investigate and suggest new process improvements in the AVIS area.

8.1 Animation and Interactive Multimedia Services

The contractor shall create, develop and distribute animations, presentations, other multimedia products distributed on CD-ROM or DVD to MSFC customers, contractors and research partners in industry and academia, to government leaders or to the public. The production of animation and interactive multimedia requires planning (pre-production), content production, and final production which includes potential deliverables as follows:

a. Pre-production work deliverables can consist of: project outline, working script, storyboard, shooting plan and shooting schedule.
b. Production work deliverables can consist of : artistic backgrounds and texture maps, model design and construction, set design, camera set up and motion plan, lighting set–up, motion path and or key-framing the required action, creating the wire frame animation and/or the animatic.
c. Post Production work can consist of: reviewing the rendered animatic, assessing the success or failure of each take and each scene, editing the scenes together into a video addressing the incorporation of the special effects into the live shot scenes, adding special effects that help to dissolve each scene into other scenes as the production requires, and reviewing the dailies with the customer and making the necessary adjustments.

8.2 Graphics and Publication

The contractor shall provide labor, material, equipment, management, and other support for MSFC graphics and publications services and products in a primarily Macintosh® environment with some Windows® systems. The contractor shall provide services and products adhering to the "NASA Style Guide" located at http://communications.nasa.gov/portal/site/osc.

8.2.1 Graphics and Publication Services

The contractor shall create, design, layout, illustrate, edit, write, proof, and produce the following type products (but not limited to): publications and presentations for posting to the web or NASA portal; 2-D and 3-D animation for various applications such as web sites, input into video, and multimedia presentations; banners, posters, and displays; books, brochures, newsletters, fact sheets,

and programs; certificates; charts, graphs, and tables; illustrations; interior signs; miscellaneous products; matting, mounting and laminating; and presentations in a variety of deliverable media.

8.2.2 Proposal Services

The contractor shall provide Proposal Publications formatted according to required specifications for each NASA Research Announcement (NRA), Announcement of Opportunity (AO), or other calls for proposals in a variety of deliverable media. The contractor shall provide compliance matrixes, templates and boilerplates, configuration management, editing, formatting, illustrations, charts, graphs, tables, layouts, production scheduling, proofreading, and writing for proposals to support MSFC submissions on announcements.

8.2.3 Scientific and Technical Information (STI)

The contractor shall provide Scientific and Technical Information (STI) Publications in a variety of media and formats such as but not limited to: Portable Document Format (PDF), CD-ROM, interactive CD-ROM/DVD, and printed manuscripts.

The contractor shall provide NASA series reports (Technical Publications, Technical Memorandums, Contractor Reports, and Conference Publications) and miscellaneous publications (journal articles). The subject matter of the NASA series reports and miscellaneous publications will include all areas of research and development.

The contractor shall be responsible for: receiving technical manuscripts from authors; determining the correct report series; determining if the author package is complete to include a completed Standard Form (SF) 298, NASA Form (NF) 1676, and other pertinent information; preparing work orders; formatting, editing, and preparing manuscripts; notifying the author for manuscript reviews; delivering final draft and NF 1676 to the Technical Publications Office for approval and NASA number assignment; and delivering final product to the author in a variety of media such as a limited amount of printed copies, PDF files, CD-ROMs, or interactive CD-ROM/DVD.

The contractor shall deliver one printed copy of each report and PDF to the Technical Publications Office for placement on the Marshall Technical Report Server (MTRS).

8.2.4 Computer Analyst Support

The contractor shall provide computer analyst support in a primarily Macintosh® environment with some Windows® systems, and associated peripherals, to perform the following functions (but not limited to):

a. Maintain all computer stations and peripherals in accordance to current NASA and MSFC Security regulations; including an inventory database of all computer and non-computer equipment and verify accurate information in NASA/MSFC-provided databases;
b. Maintain software inventory and database; monitor current trends in technology and MSFC capabilities;

c. Provide research for all non-NASA Desktop standard provided software and plug-ins with emphasis on specialized Graphics and Publication software;
d. Coordinate and assist with operating system upgrades/updates by developing unique graphics "system loads" to provide all graphics computers with uniform systems and performing the installations;
e. Research and recommend hardware and software for computer updates and replacements
f. Provide research and education on font management ensuring compatible fonts across all computers;
g. Provide real-time troubleshooting for all computer systems and interface with NASA Standard Desktop Helpdesk and technicians;
h. Develop best practices with current operating systems and specialized software to maintain consistency and compatibility across all computers and associated peripherals, including large-format graphic printers.

8.3 Photographic Services

The contractor shall provide still photographic services for Still Documentation, Passport/Visa photos, Official Portraits, Special Events Photography, Photographic Laboratory Services, and Conference Room Support, that includes documentation of lab or field-testing to official NASA personnel photos and high-quality digital images for distribution to news media, and public outreach. The contractor shall be responsible for the operation of MSFC's photographic equipment, distribution systems, and studio. These services include maintenance of existing processes, and development or acquisition and implementation of enhancements for the imaging services.

8.3.1 Still Photography

The contractor shall provide still photographic documentation of Centerwide events that would be considered significant or historical. Contractor still photographers shall document technology research elements, significant testing milestones, and hardware studies conducted at the Center. The contractor shall provide photographic distribution in support of MSFC programs and projects. The contractor shall operate and maintain the existing photographic studio.

8.3.2 Photographic Laboratory

The contractor shall provide a full service photographic production laboratory. The contractor shall provide digital photographic production including image enhancement, printing, and electronic distribution.

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8.3.4 Marshall Image Exchange (MiX) and Photographic Archive

The contractor shall maintain still photographic libraries and archives on Center. The contractor shall scan images for displaying on the current MiX website in accordance with NASA Image Exchange (NiX) guidelines. The contractor shall research and develop captions for images, including interfacing with NASA/MSFC program/project personnel. The contractor shall work with NASA personnel in the transition from MiX to the NASA Images Archive.

8.3.5 Conference Room Support

The contractor shall provide conference room support including installation and maintenance of existing conference room capabilities, such as ceiling-mounted projectors, polycoms, televisions and screens. The contractor shall provide design, development and implementation for NASA-approved requirements.

The Contractor shall schedule the conference facilities located in Morris Auditorium, P110, in building 4200 and Contracting Officer's Technical Representative (COTR) designated video teleconferencing rooms. The contractor shall operate these facilities.

8.3.6 Audio Video Support Services

The contractor shall maintain the hardware required for the Marshall Cable Television System. The contractor shall receive downlinks during shuttle missions as a backup to the main receiving system as well as other downlinks to support MSFC and the Agency. The contractor shall provide and maintain all MSFC and MAF Audio Video installations such as televisions, screens, projectors, and polycoms.

8.4 Reproduction and Printing Services

The contractor shall provide materials, management, and other resources necessary to operate in-house duplicating services and provide commercial printing procurement services to MSFC programs, projects, and organizations. The contractor shall provide these services in accordance with Public Law 102-392 and Section 207, the Joint Committee on Printing (JCP) Printing and Binding Regulations, NPD 1490.1, *NASA Printing, Duplicating, and Copy Management* and MPR 1490.1, *Printing, Reproduction, and Self-Service Copying Services*.

8.4.1 In-house Duplicating Services

The contractor shall operate and manage an in-house duplicating facility, located in Building 4200, Room G34, and large-format engineering document reproduction, located in Bldg. 4491.

The services provided shall include (but not limited to): Black and White (B&W) duplication of (one or two-sided) standard-size documents (up to 11"x17"); large-format documents (simplex only) up to J-size; and color duplication of standard documents up to 12" x 18" (one or two-sided). The contractor shall provide binding services for B&W and color products to include (but not limited to): side stitch, stapled-upper-left, saddle-stitch, adhesive-tape perfect binding, three-hole drill, metal fasteners, GBC binding (comb binding), and plastic coil binding. The contractor shall provide special finishing operations to include (but not limited to): tri-fold, pamphlets, printed & inserted tabs, Z-fold for 11"x17", large document folding, adhesive padding, and variable data

printing. The contractor shall on occasion be required to provide "expedited service" that requires overtime.

The contractor shall receive, process, and duplicate from paper originals or electronic files submitted by the customer from various sources and/or media. The contractor shall receive customer service requests through an on-line ordering system. The contractor shall complete each service request per the customer specifications and delivery dates as requested.

The contractor shall evaluate and recommend new technology hardware and/or software for replacing existing equipment or software. The contractor shall acquire, manage installation, and implement new processes or software as needed.

The contractor shall collect production metrics within the service request system and shall maintain service request records per the MSFC Printing Office Records Retention Plan. The contractor shall provide various production reports monthly, quarterly, and annually in accordance with DRD 1292MA-006.

8.4.2 Commercial Printing Procurement

The contractor shall have the ability to procure any commercial printing as a backup capability as needed through the Government Printing Office (GPO) in support of all MSFC organizations and entities acting on behalf of Marshall Space Flight Center. This procurement process is mandated and provided in accordance with Title 44 of the U.S. Code and Public Law 102-392, October 6, 1992 (amended by Public Law 103-283, July 22, 1994), Section 207 and the NPD 1490.1.

The contractor shall provide printing procurement services to the MSFC Printing Office, Building 4200, room G32A. The contractor shall procure posters, brochures, tri-fold pamphlets, periodicals, bookmarks, tags, forms, decals, lithographs, coasters, magnets, poly-bags, letterhead, CD/DVD mastering and replication, and business cards for MSFC customers. The contractor shall interface with MSFC customers to determine their requirements; write printing requisitions per GPO procedures review and approve pre-production proofs; and evaluate printed products for compliance to specifications. The contractor shall report quality defects and manage corrective action.

The contractor shall utilize all procurement vehicles available through the GPO to include one-time solicitations, MSFC and NASA Headquarters term contracts, and the GPO Simplified Purchase Acquisition (SPA) program. The contractor shall assist the MSFC Printing Office in managing these contracts through Atlanta Regional GPO and Washington GPO. The contractor shall have expert knowledge of terms and conditions of printing contracts. The contractor shall assist the MSFC Printing Office in collaborating with other NASA centers as a participant in the "NASA Print Rider" program. The contractor shall understand and procure products within MSFC funding guidelines. The contractor shall manage office records and databases per the MSFC Printing Office Records Retention Plan. The contractor shall collect production metrics within the service request system. The contractor shall provide various production reports monthly, quarterly, and annually per DRD 1292MA-006.

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8.5 Television and Video Services

The contractor shall provide material, management, and other resources required for the total operation of MSFC's Television and Video Services. Activities shall include planning, producing, documenting, engineering, archiving, operations, and maintenance. Specifically, the contractor shall:

a. Operate and maintain the existing studio.
b. Produce, distribute, televise, transmit, and record live presentations, ceremonies, programs and other special events.
c. Prepare and distribute live and recorded broadcast quality productions.
d. Plan, develop, script-write, film and edit a variety of broadcast quality video projects.
e. Record and archive in support of MSFC research and development testing.
f. Provide content for closed circuit television (CCTV), Desktop TV, and Podcasts.
g. Receive and distribute NASA TV content.
h. Provide select MSFC videos for distribution on NASA TV.
i. Operate and maintain the equipment in the Building 4207 television department.
j. Operate a multi-format recording and duplication facility including but not limited to VHS, Beta SP, DVCAM, DVD, CD, DVC Pro, SVHS, DVC ProHD, and HDCAM.
k. Operate and maintain full broadcast audio production facility.
l. Complete the migration of production and distribution processes to HDTV.
m. Maintain music libraries, motion picture photographic library, tape library and archives. At all times, the contractor shall know the location of any item in the archive.
n. Implement and maintain a digital archive.
o. Integrate content between AVIS PWS paragraph 8.0 elements; distributes content to other AVIS PWS elements.
p. Assist the Agency’s DTV Working group as needed.

8.6 Streaming Services

The contractor shall develop, implement and maintain hardware and software required to provide live and on-demand streaming services to MSFC and MAF using the Desktop TV application (Desktop TV) as a front-end web interface to both live and on-demand content. The contractor shall provide content delivery, live event support and format conversion in support of this service. The contractor shall provide this streaming service using NASA approved software tools and formats.

8.7 Special Events Administration and Support Services

The contractor shall support MSFC and MAF Special Events, which are events not in the category of research, testing or development, as customer requested through an online service request system. This support includes administration of the services for a requested event in which one or more services from PWS paragraph 8.0 shall be performed.

8.7.1 Special Event Administration

The contractor shall coordinate between the customer and service providers to identify specific details needed to support the event, this includes: finalizing requirements and preparing an event

requirements document; and preparing and delivering a cost estimate to Government for distribution to requesting customer for approval.

The contractor shall send a post-event continuous improvement electronic customer survey to the customer within 2 days after the event. This survey requests feedback on the quality of services provided by the contractor. This feedback is shared with the service providers and if negative feedback is received from a customer, procedures in MWI 1280.2, *MSFC Customer Feedback (CF) Processing Through The Corrective Action System (CAS)*, will be followed.

8.7.2 Special Event Support

The contractor shall provide Audio Video support for all MSFC events by providing the sound system, podium, microphone, flags, projectors, large screens, and other associated equipment. The contractor shall be prepared to fully support overlapping events, if requested.